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**FAX COVERSHEET**

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For the Attention of: European Patent Office

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**Re:** International Application No.: PCT/US03/29533

International Filing Date: 17 September 2003 (17.09.03)

Earliest Priority Date: 17 September 2002 (17.09.02)

Applicant(s): BETH ISRAEL DEACONESS MEDICAL CENTER, INC.  
ET AL.

Title: RADIO FREQUENCY IMPEDANCE MAPPING

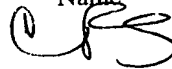
Our Reference No.: B00662.70056

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The undersigned hereby certifies that a Request Under PCT Rule 91.1(b) for Rectification of Obvious Errors with substitute sheet(s) are being facsimile transmitted to European Patent Office, Erhardtstrasse 27, D-80298 Munich, GERMANY, on 05 January 2004.

Colleen F. Sullivan

Name



Signature

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**IN THE EUROPEAN PATENT OFFICE**  
**AS INTERNATIONAL SEARCHING AUTHORITY**

International Application No. : PCT/US03/29533  
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European Patent Office  
Erhardtstrasse 27  
Munich D-80298  
GERMANY

**REQUEST UNDER PCT RULE 91.1(b)**  
**FOR RECTIFICATION OF OBVIOUS ERRORS**

Transmitted herewith for filing is a Request Under PCT Rule 91.1(b) for Rectification of Obvious Errors with substitute sheets.

If the enclosed papers are considered incomplete, the Authorized Officer is respectfully requested to contact the undersigned collect at (617) 720-3500, Boston, Massachusetts.

Respectfully submitted,

  
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DOCKET NO.: B00662.70056  
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Applicant would like to bring to the Authorized Officer's attention that changes have been made to the above-identified international application.

**In the Specification**

Page 11, line 17, after "body" insert reference numeral --step 305-- for clarification;

Replacement sheet page 11 is enclosed. Applicant respectfully requests that this replacement sheet be accepted and replace originally filed page 11 to reflect the changes. No new matter has been added.

**REMARKS**

The Authorized Officer is invited to contact the undersigned by collect telephone call should he/she have any questions concerning this Request.

Respectfully submitted,



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coils, transmission line array coils, various other resonant coils, etc. A resonant coil may comprise any number and arrangement of reactive components (e.g., capacitors and inductors) by which resonant electromagnetic fields may be generated.

For simplicity and clarity, various aspects of the present invention will be illustrated in connection with the generally planar coil illustrated in FIG. 2. For example, FIGS. 6 and 9 illustrate coil arrays comprising a plurality of coils schematically depicted as the general conductive loop connected by lumped capacitors. However, this depiction is meant to indicate the presence of a resonant coil and not the specific type or arrangement (e.g., planar, birdcage, etc.). As such, any type of resonant coil could be used. The invention is not limited to the coils specifically illustrated herein and contemplates use with any of the coils mentioned above or any other coils capable of generating resonant EM fields.

FIG. 3 illustrates one embodiment according to the present invention of a method for determining dielectric properties of a body acting as a load on an array of RF coils. The coil array may comprise a plurality of coils each having a resonant frequency. That is, an unloaded  
15 coil may be configured to resonate at a generally known nominal frequency. Each coil in the array may be designed to have a same or different nominal resonant frequency.

In step 310, a body (step 305) to be imaged may be positioned proximate to the plurality of coils in the array. In particular, the body is placed in a spatial relationship with the array such that the body acts as a load, causing some measurable loading effect on the array.

20 The body is typically positioned in a generally known relationship with the array. The body may comprise one or more regions with unknown dielectric properties. For example, the body may be a patient having regions of homogeneous and inhomogeneous regions of conductivity and/or permittivity, or the body may be baggage such as airline luggage to be analyzed for items having certain conductivity and/or permittivity characteristics.

25           In step 320, a change in one or more resonant properties the coil array may be detected. For example, one or more measurements of properties of the coil array may be obtained. As described above, the loading effect resulting from placing the load proximate to the one or more coils will affect various properties of the coils. For example, various impedance characteristics of the coil array may be measured by operating one or more of the coils and  
30           measuring the impedance characteristics of one or more other coils in the array.

In step 330, the change in the one or more resonant properties of at least one of the coils may be used to determine dielectric properties of the body. For example, one or more



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**Eingereichte Unterlagen**

**Items filed**

**Pièces envoyées**

Anmeldungs- (und Direktions-*) Nr./Patent Nr. Application (and Directorate*) No./Patent No. N de la demande (et de la direction*)/n du brevet	Ihr Zeichen Your reference Votre référence	ggfs. Art und Datum der Unterlagen** Nature and date of items (optional)** Nature et date des pièces (facultatif)**
1 PCT/US03/29533	B00662.70056	*Fax Coversheet
2		*Transmittal Letter
3		*Rectification of Obvious
4		Errors (Request Under
5		Rule 91.1(b))
6		*Substitute Sheet Page 11
7		
8		
9		
10		

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